



Australian Government

Australian Transport Safety Bureau

VFR into IMC involving a Cessna 206, VH-NCR

28 km south of Inverell aerodrome, New South Wales, 26 July 2014

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Addendum

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VFR into IMC involving a Cessna 206, VH-NCR

What happened

On 26 July 2014, the pilot of a Cessna 206, registered VH-NCR, prepared to conduct a private flight from Dubbo, New South Wales, to Gold Coast and Archerfield, Queensland, with three passengers on board. The pilot planned to conduct the flight under the visual flight rules (VFR) and obtained the relevant weather forecasts for the route including area and aerodrome forecasts. Low cloud on the ranges was forecast, including broken stratus cloud with tops around 5,000 ft, scattered cumulus and stratocumulus cloud with tops around 12,000 ft and isolated cumulonimbus clouds with tops around 25,000 ft were forecast associated with a passing front.¹

The aircraft departed Dubbo at about 1340 Eastern Standard Time (EST), and when about 15 NM south of Inverell, the pilot observed the weather deteriorating and low cloud about the ranges, and elected to climb and operate VFR on top of the cloud.² He expected to be able to navigate around the isolated towering cumulonimbus cells. However, as the aircraft climbed above 5,000 ft, the pilot observed a widespread frontal mass of cloud with tops around 12,000 ft. At about 1550 EST, the pilot contacted Brisbane Centre air traffic control (ATC) and advised them of the situation. He requested navigation assistance and ATC provided updated weather information for Armidale and Coffs Harbour airports. ATC advised that the lowest safe altitude in that area was 6,000 ft above mean sea level.

The pilot initially considered a diversion to Moree, however he was able to descend through a break in the cloud and elected to divert to Inverell. When about 5 NM from Inverell, the pilot was unable to sight the airport and became concerned about the lowering cloud base in the area. He decided to turn to track south-west and commenced a turn however, while passing about 3,800 ft during the turn, the aircraft entered cloud. The pilot immediately applied full power and commenced climbing until the aircraft became clear of cloud at about 5,000 ft. While in cloud the pilot switched off the aircraft strobe lights.

The pilot advised ATC that he had inadvertently entered cloud and ATC provided updated weather forecasts for Tamworth and Gunnedah airports. The pilot then commenced a diversion to Tamworth, however the weather was deteriorating at Tamworth and, at about 1626 EST the pilot diverted to Gunnedah and was able to remain in visual meteorological conditions (VMC) for the duration of the flight. The aircraft landed in Gunnedah at about 1650.

Pilot comments

The pilot provided the following comments:

- The main difference between his expectation of the weather based on the forecast and the actual weather he was confronted with was that rather than isolated cumulonimbus clouds, there appeared to be a full front of towering clouds with no gaps.
- Despite having read many publications regarding inadvertent flight into IMC and how to avoid it, he was unprepared for the actual experience of entering marginal conditions. Without set criteria of when to turn back, he was uncertain how far to continue on, particularly when within 5 NM of Inverell aerodrome.

¹ Cloud cover is normally reported using expressions that denote the extent of the cover. The expression 'few' indicates that up to a quarter of the sky was covered, 'scattered' indicates that cloud was covering between a quarter and a half of the sky. 'Broken' indicates that more than half to almost all the sky was covered, while 'overcast' means all the sky was covered.

² For provisions regarding VFR flight on top of cloud, see www.casa.gov.au/wcmswr/assets/main/pilots/download/vfr/vfrg-whole.pdf

- In future he would be more decisive and act earlier when electing to turn back.

Safety message

Pilots are encouraged to make conservative decisions when considering how forecast weather may affect their flight. If poor weather is encountered en route, timely and conservative decision making may be critical to a safe outcome. VFR pilots are also encouraged to familiarise themselves with VMC criteria detailed in *Aeronautical Information Publication (AIP) Australia*, and carefully consider available options where forecast or actual conditions are such that continued flight in VMC cannot be assured.

The ATSB SafetyWatch highlights the broad safety concerns that come out of our investigation findings and from the occurrence data reported to us by industry. One of the safety concerns is flying with reduced visual cues, www.atsb.gov.au/safetywatch/flying-with-reduced-visual-cues.aspx.



Under visual flight rules (VFR), it is crucial that pilots have sufficient visual reference to see and avoid obstacles. Visual cues are required for VFR pilots to maintain orientation and therefore control of the aircraft. Cloud can reduce visibility to the extent that a pilot may be unable to see and avoid obstacles.

The ATSB recently published *Avoidable Accidents No. 4 – Accidents involving Visual Flight Rules pilots in Instrument Meteorological Conditions* www.atsb.gov.au/publications/2011/avoidable-4-ar-2011-050.aspx. A key message outlined in the report is:

Pressing on in to IMC conditions with no instrument rating carries a significant risk of severe spatial disorientation due to powerful and misleading orientation sensations in the absence of visual cues. Disorientation can affect any pilot, no matter what their level of experience.

General details

Occurrence details

Date and time:	26 July 2014 – 1550 EST	
Occurrence category:	Serious incident	
Primary occurrence type:	VFR into IMC	
Location:	28 km S of Inverell aerodrome, New South Wales	
	Latitude: 30° 08.05' S	Longitude: 151° 05.30' E

Aircraft details

Manufacturer and model:	Cessna Aircraft Company 206G	
Registration:	VH-NCR	
Serial number:	U20605336	
Type of operation:	Private	
Persons on board:	Crew – 1	Passengers – 3
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; and fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

About this report

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.